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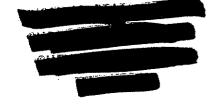
McGraw-Hill DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS

Fourth Edition





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On the cover: Pattern produced from white light by a computer-generated diffraction plate containing 529 square apertures arranged in a 23 \times 23 array. (R. B. Hoover, Marshall Space Flight Center)

On the title pages: Aerial photograph of the Sinai Peninsula made by Gemini spacecraft. (NASA)

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TA 145

analog radio system

analytic psychology

analog radio system See AR system { 'anal,äg 'rā dē ő 'sistəm }

analog readout [ENG] A scale on a balance that continuously indicates measurement values by the position of an index mark, either a line or a pointer, opposite a graduated scale which is usually marked with numbers. { 'an al. āg 'rēd, aut }

usually marked with numbers. { 'an-al,āg 'rēd,aùt }
analog recording [ELECTR] Any method of recording in
which some characteristic of the recording signal, such as
amplitude or frequency, is continuously varied in a manner
analogous to the time variations of the original signal. { 'anal,āg ri'kord-in }

analog signal [ELECTR] A nominally continuous electrical signal that varies in amplitude or frequency in response to changes in sound, light, heat, position, or pressure { 'anol, äg 'signol}

analog simulation (COMPUT SCI) The representation of physical systems and phenomena by variables such as translation, rotation, resistance, and voltage { 'an al, ag , sim ya'la shan }

analog states [NUC PHYS] Certain nuclear states belonging to neighboring nuclear isobars and possessing identical structure except for the transformation of one or more neutrons into the same number of protons the same number of protons states { 'an al, ag , stats }

analog switch [ELECTR] 1. A device that either transmits an analog signal without distortion or completely blocks it 2. Any solid-state device, with or without a driver, capable of bilaterally switching voltages or current. { an al, ag, swich }

analog-to-digital converter [ELECTR] A device which translates continuous analog signals into proportional discrete digital signals { an al, äg ta 'dij at al kan'vord ar }

analog-to-frequency converter [ELECTR] A converter in which an analog input in some form other than frequency is converted to a proportional change in frequency { 'an al, ag to 'frê-kwan sê kan' vard ar }

analog voltage [ELECTR] A voltage that varies in a continuous fashion in accordance with the magnitude of a measured variable. { 'an al, ag 'vol tij }

anal plate [EMBRYO] An embryonic plate formed of endoderm and ectoderm through which the anus later ruptures. [VERT 200] 1. One of the plates on the posterior portion of the plastron in turtles. 2. A large scale anterior to the anus of most snakes. { 'ān əl ,plāt } anal sphincter [ANAT] Either of two muscles, one voluntary

anal sphincter [ANAT] Either of two muscles, one voluntary and the other involuntary, controlling closing of the anus in vertebrates. { 'ān əl 'sfiŋk tər }

analysis [ANALY CHEM] The determination of the composition of a substance [MATH] The branch of mathematics most explicitly concerned with the limit process or the concept of convergence; includes the theories of differentiation integration and measure, infinite series, and analytic functions. Also known as mathematical analysis. [METEOROL] A detailed study in synoptic meteorology of the state of the atmosphere based on actual observations, usually including a separation of the entity into its component patterns and involving the drawing of families of isopleths for various elements { o'nal o sas } analyte [ANALY CHEM] The sample being analyzed. { 'analyte [ANALY CHEM] The sample being analyzed. { 'analyte [ANALY CHEM] The sample being analyzed. } 'analyte [ANALY CHEM]

analytical aerotriangulation [ENG] Analytical phototriangulation, performed with aerial photographs { ,an-al'id a kalero,trī,an gya'lā-shan }

analytical balance [ENG] A balance with a sensitivity of 0 1-0.01 milligram { ,an əl'id-ə-kəl 'bal-əns }

analytical centrifugation [ENG] Centrifugation following precipitation to separate solids from solid-liquid suspensions; faster than filtration. { ,ampl'id p kpl sen,trif p'gū shon }

analytical chemistry [CHEM] The branch of chemistry dealing with techniques which yield any type of information about chemical systems. { an al'id a kal 'kem a strê }

analytical distillation [ANALY CHEM] Precise resolution of a volatile liquid mixture into its components; the mixture is vaporized by heat or vacuum, and the vaporized components are recondensed into liquids at their respective boiling points. { ,an-al'id-a-kal, dis-ta-lia-shan }

analytical engine [COMPUT SCI] An early-19th-century form of mechanically operated digital computer { an al'id-a-kal 'en ian }

analytical extraction [ANALY CHEM] Precise transfer of one or more components of a mixture (liquid to liquid, gas to liquid.

solid to liquid) by contacting the mixture with a solvent in which the component of interest is preferentially soluble { ,in al'id-a kal ik'strak shan }

analytical function generator [ELECTR] An analog computer device in which the dependence of an output variable on one or more input variables is given by a function that also appears in a physical law. Also known as natural function generator; natural law function generator { an al'id a kal 'fonk shon jen a rād ar }

analytical geomorphology See dynamic geomorphology { an al id a kal , je ō, mor fal a je }

analytical nadir-point triangulation [ENG] Radial triangulation performed by computational routines in which nadir points are utilized as radial centers { an al'id a kal 'na,dir 'point ,trī,an gya'lā shan }

analytical orientation [ENG] The computational steps required to determine tilt, direction of principal line, flight height, angular elements, and linear elements in preparing aerial photographs for rectification { an allidokal orie an lia should be analytical photogrammetry [ENG] A method of photogrammetry [ENG] A method of photogrammetry [ENG] and the method of photogrammetry [ENG] are all the method of photogrammetry [ENG] and the method of photogrammetry [ENG] are all the method of photogrammetry [ENG] and the method of photogrammetry [ENG] are all the method of photogrammetry [ENG] and the method of photogrammetry [ENG] are all the method of photogrammetry [ENG] and the method of photogrammetry [ENG] are all the method of photogrammetry [ENG] are all the method of photogrammetry [ENG] and the method of photogrammetry [ENG] are all the method of photogrammetry [ENG] are all the method of photogrammetry [ENG] and the method of photogrammetry [ENG] are all the method of photogra

grammetry in which solutions are obtained by mathematical methods { an al'id-a-kal ,föd a'gram-a-trë } analytical photography [ENG] Photography, either motion

picture or still, accomplished to determine (by qualitative, quantitative, or any other means) whether a particular phenomenon does or does not occur. { ,ampl'id a kal fa'täg ra fē } analytical phototriangulation [ENG] A phototriangulation procedure in which the spatial solution is obtained by compu-

tational routines { ,an-ol'id o kol ,fod o,trī,an gyo'lā shon } analytical radar prediction [ENG] Prediction based on proven formulas, power tables, or graphs; considers surface height, structural and terrain information, and criteria for radar reflectivity together with the aspect angle and range to the target. { ,an ol'id o kol 'rā,dār pro'dik shon }

analytical radial triangulation [ENG] Radial triangulation performed by computational routines { ,an-al'id a-kal 'râd ē-al ,tri,an-gya'lā-shan }

analytical three-point resection radial triangulation [ENG] A method of computing the coordinates of the ground principal points of overlapping aerial photographs by resecting on three horizontal control points appearing in the overlap area {,an-ol'id-o-kol 'three' point re'sek shan 'râd e-ol ,tri,an-gyo'lâ shan analytical ultracentrifuge [ENG] An ultracentrifuge that uses one of three optical systems (schlieren. Rayleigh, or absorption) for the accurate determination of sedimentation velocity or equilibrium {,an-ol'id-o-kol ',ol tro,'sen-tro,fyüj } analytic continuation [MATH] The process of extending an

analytic function to a domain larger than the one on which it was originally defined { ,an-ol'id-ik kon tin yü'ā-shon } analytic curve [MATH] A curve whose parametric equations are real analytic functions of the same real variable { ,an-

al'idik 'kərv)
analytic function [MATH] A function which can be represented by a convergent Taylor series Also known as holo-

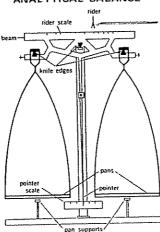
morphic function { ,an al'id ik 'funk shan }
analytic geometry [MATH] The study of geometric figures
and curves using a coordinate system and the methods of algebra. Also known as cartesian geometry { ,an al'id ik
je'am-a-trē }

analytic hierarchy [MATH] A systematic procedure for representing the elements of any problem which breaks down the problem into its smaller constituents and then calls for only simple pairwise comparison judgments to develop priorities at each level { an al'id ik 'hī ər, är kē }

analytic inertial navigation [NAV] Inertial navigation in which outputs of accelerometers that have inertia-maintained orientations are converted to geographic navigational data by automatic computers { an al'id-ik in'ar shal , nav a'gā shan } analytic mechanics [MECH] The application of differential and integral calculus to classical (nonquantum) mechanics { an al'id-ik mi'kan iks }

analytic number theory [MATH] The study of problems concerning the discrete domain of integers by means of the mathematics of continuity { an of id ik nom bor the ore } analytic psychology [rsych] The school of psychology that regards the libido not as an expression of the sex instinct, but of the will to live; the unconscious mind is thought to express certain archaic memories of race Also known as Jungian psychology { an of id-ik si kāl o-jē }

ANALYTICAL BALANCE



The rider analytical balance; simplest type of analytical

(a)

in the order Spatangoida which lacked fascioles and petals { ,täk sə'sterə,dē }

abnormal protein metabolism { tāk sē mē ə }

tāk sē mē a av toxemia of pregnancy See preeclampsia.

Relating to a harmful effect by a poisonous toxic [MED] substance on the human body by physical contact, ingestion, or inhalation { 'täk-sik }

toxic amaurosis [MED] Blindness following the introduction of toxic substances into the body, such as ethyl and methyl alcohol, tobacco, lead, and metabolites of uremia and diabetes { täk-sik ,a,mo'rō-səs }

toxic golter See hyperthyroidism. ('täk-sik 'goid ər)

toxic hepatitis [MED] Inflammation of the liver caused by chemical agents ingested or inhaled into the body, such as chlorinated hydrocarbons and some alkaloids ('täk sik ,hepa'tīdras }

toxicity [PHARM] 1. The quality of being toxic. 2. The kind and amount of poison or toxin produced by a microorganism. or possessed by a chemical substance not of biological origin

toxicology [PHARM] The study of poisons, including their nature, effects, and detection, and methods of treatment { ,tak səˈkāl-ə jē }

toxicophobla [PSYCH] Abnormal fear of being poisoned { täk sə kô fo bō ə }

toxic psychosis [MED] A brain disorder due to a toxic agent such as lead or alcohol. ('täk sik sī'kō-səs)

toxicyst [INV 200] A type of trichocyst in Protozoa which may, upon contact, induce paralysis or lysis of the prey ('tak

toxigenicity [MICROBIO] A microorganism's capability for producing toxic substances. { ,täk sə jə'nis əd ë }

toxin [BIOCHEM] Any of various poisonous substances produced by certain plant and animal cells, including bacterial toxins, phytotoxins, and zootoxins. ('täk-sən)

Toxodontia [PALEON] An extinct suborder of mammals representing a central stock of the order Notoungulata sə dän-chə

Toxoglossa [INV 200] A group of carnivorous marine gastropod mollusks distinguished by a highly modified radula (toxoglossate) { ¡täkˈsəˈgläsˈə }

toxoglossate radula [INV 200] A radula in certain carnivorous gastropods having elongated, spearlike teeth often perforated by the ducts of large poison glands. { |täk səˈgläˌsāt ˈraj

toxold [IMMUNOL] Detoxified toxin, but with antigenic properties intact; toxoids of tetanus and diphtheria are used for immunization { 'täk,soid }

Toxoplasmea [INV 200] A class of the protozoan subphylum Sporozoa composed of small, crescent-shaped organisms that move by body flexion or gliding and are characterized by a two-layered pellicle with underlying microtubules, micropyle. paired organelles, and micronemes { 'täk sə'plaz me ə }

Toxoplasmida [INV 200] An order of the class Toxoplasmea; members are parasites of vertebrates { 'täk·sə'plazmadra l

toxoplasmin [BIOCHEM] The Toxoplasma antigen; used in a skin test to demonstrate delayed hypersensitivity to toxoplasmosis { tak so plaz mon }

toxoplasmosis [MED] Infection by the protozoan Toxoplasma gondi, manifested clinically in severe cases by jaundice, hepatomegaly, and splenomegaly. (tak-sa-plaz'mō-sas)

Toxopneustidae [INV 200] A family of Tertiary and extant echinoderms of the order Temnopleuroida where the branchial slits are deep and the test tends to be absent { ,täk sə'nyü stə,dê }

Toxotidae [VERT 200] The archerfishes, a family of small fresh-water forms in the order Perciformes { täk'säd ə,dē } TPA See terephthalic acid

T pad [ELEC] A pad made up of resistance elements arranged as a T network (two resistors inserted in one line, with a third between their junction and the other line). ('tê, pad')

T phage [VIROL] Any of a series (T1-T7) of deoxyribonucleic acid phages which lyse strains of the gram-negative bacterium Escherichia coli and its relatives { 'te,fāj }

Toxasteridae [PALEON] A family of Cretaceous echinoderms

toxemla [MED] A condition in which the blood contains toxic substances, either of microbial origin or as by-products of

'preg-nan-sĕ }

TOXOGLOSSATE RADULA

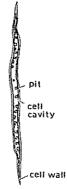
Toxoglossate radula from marine astropods: (a) Conus species; (b) Terebra species. (From R. R. Shrock and W. H. Twenhofel. Principles of Invertebrate Paleontology. 2d ed., McGraw-Hill. 1953)





Feeding trail, a trace fossil reeding trail, a trace lossil resulting from the grazing of animals along the surface of a sediment, in ichnogenus Cosmorhaphe, from Tertiary sediments at Pologne. Ifrom R. C. Moore. ed., Treatise on Invertebrate Paleontology, pt. W. University of Kansas Press. 1962)

TRACHEID



Drawing of a tracheid, showing characteristic features. (From H. J. Fuller and O. Tippo, College Botany, rev ed., Holt. 1954)

TP monitor See teleprocessing monitor. { 'tê'pê ,man ad ar } TPN See triphosphopyridine nucleotide.

TPR See airborne profile recorder

t quark See truth quark. { 'te ,kwark }

trabecula [ANAT] A band of fibrous or muscular tissue extending from the capsule or wall into the interior of an organ { tra'bck ya la }

trace [COMPUT SCI] To provide a record of every step, or selected steps, executed by a computer program, and by extension, the record produced by this operation [ELECTR] The visible path of a moving spot on the screen of a cathode-ray Also known as line [ENG] The record made by a recording device, such as a seismometer or electrocardiograph. [GEOL] The intersection of two geological surfaces [MATH] The trace of a matrix is the sum of the entries along its principal diagonal. Designated Tr Also known as spur [METEOROL] A precipitation of less than 0.005 inch (0.127 millimeter) [SCI TECH] An extremely small but detectable quantity of a substance. { trãs }

trace analysis [ANALY CHEM] Analysis of a very small quantity of material of a sample by such techniques as polarography or spectroscopy. { 'tras ə,nal ə səs }

trace element [BIOCHEM] A chemical element that is needed in minute quantities for the proper growth, development, and physiology of the organism. Also known as micronutrient [GEOCHEM] An element found in small quantities (usually less than 1.0%) in a mineral Also known as accessory element; guest element. { 'trās ¡el ə mənt }

trace fossil [GEOL] A trail, track, or burrow made by an animal and found in ancient sediments such as sandstone, shale. or limestone. Also known as ichnofossil { 'trās ,fās əl }

trace interval [ELECTR] Interval corresponding to the direction of sweep used for delineation. ('tras ,in tar-val)

tracer [CHEM] A foreign substance, usually radioactive, that is mixed with or attached to a given substance so the distribution or location of the latter can later be determined; used to trace chemical behavior of a natural element in an organism. Also known as tracer element [ENG] A thread of contrasting color woven into the insulation of a wire for identification purposes ('tra-sər

tracer bullet [ORD] A bullet containing a pyrotechnic mixture to make the flight of the projectile visible by day and night { 'träiser .buleat }

tracer element See tracer { 'tra ser ,el e ment }

tracer gas [ENO] In vacuum testing for leaks, a gas emitting through a leak in a pressure system and subsequently conducted into the detector. { 'tra sor ,gas }

tracer milling [MECH ENG] Cutting a duplicate of a three-dimensional form by using a mastic form to direct the tracercontrolled cutter { 'trassr ,mil in }

tracer mixture [ORD] A pyrotechnic composition used for loading tracer bullets { 'traser ,miks cher }

trace routine [COMPUT SCI] A routine which tracks the execution of a program, step by step, to locate a program malfunction Also known as tracing routine { 'trās ru, tēn }

trace sensitivity [ELECTR] The ability of an oscilloscope to produce a visible trace on the scope face for a specified input voltage. { 'tras |sen-so,tiv-od-e }

trace slip [GEOL] That component of the net slip in a fault which is parallel to the trace of an index plane on a fault plane (tras slip)

trace-slip fault [GEOL] A fault whose net slip is trace slip { 'träs ,slip ,fölt }

trace statement [COMPUT SCI] A statement, included in certain programming languages, that causes certain error-checking procedures to be carried out on specified segments of a source program { 'trâs ,stât mont }

trachea [ANAT] The cartilaginous and membranous tube by which air passes to and from the lungs in humans and many vertebrates [BOT] A xylem vessel resembling the trachea of [INV 200] One of the anastomosing air-conveyvertebrates. ing tubules composing the respiratory system in most insects

tracheid [BOT] An elongate, spindle-shaped xylem cell. lacking protoplasm at maturity, and having secondary walls laid in various thicknesses and patterns over the primary wall trā kē əd

Tracheophyta [BOT] A large group of plants characterized